

**TWO-PIECE INTERLOCKING CORNER PROTECTOR**

**Inventor: Chris Stapleton**

**Attorney Docket: 3500-00072**

**ANDRUS, SCEALES, STARKE & SAWALL  
100 East Wisconsin Avenue, Suite 1100  
Milwaukee, WI 53202  
Phone: (414) 271-7590  
Fax: (414) 271-5770**

## TWO-PIECE INTERLOCKING CORNER PROTECTOR

### CROSS REFERENCE TO RELATED APPLICATION

This application is based on and claims priority from Provisional U.S. Patent Application Serial No. 60/440,817 filed January 17, 2003.

#### 5 BACKGROUND OF THE INVENTION

The present invention generally relates to a package protector for use in shipping articles. More specifically, the present invention relates to a package protector that provides three sided protection for difficult to manage, narrow items and can be compactly stored and quickly assembled without external components.

10 Presently, edge protectors are available having a generally V-shape cross-section to protect the edges of products being shipped within a storage container or to provide external protection of stacked articles. The edge protectors are formed from a laminated paperboard material. The V-shaped edge protectors are presently used to provide protection to two sides of a product being shipped.

15 Currently, if a narrow, long item such as a window, door or panel needs to be shipped, a pair of V-shaped edge protectors are attached to each other to create a U-shaped protector that provides protection for three sides of the product to be shipped. Typically, the two V-shaped edge protectors are coupled to each other by overlapping one of the legs of each protector and riveting the two  
20 protector legs together along the overlap area. Although a pair of riveted connect protectors are able to provide protection to three sides of a product, the rivets can scratch the product being shipped and the overlapping surface could possibly mar the product being shipped.

An additional disadvantage of the currently available product is that  
25 the riveted protector requires more room for storage and requires an additional step to construct.

An additional method of providing three-side protection is to use a pre-formed laminated paperboard product with a U-shaped cross-section. Key disadvantages of this product are that the product does not nest well, so the U-  
30 shaped product takes up much room during storage and shipment.

Therefore, a need currently exists for a product protector that can be easily stored and assembled by an end user to provide protection for three sides of a product being shipped. Further, a need exists for a product protector formed from laminated paperboard that provides a smooth inner surface to prevent damage to a product being shipped.

## SUMMARY OF THE INVENTION

The present invention is a product protector for protecting three edges of a product being shipped. The product protector is formed from a pair of corner protectors joined to each other to define a generally U-shape to protect three edges of a product. Each of the corner protectors can be easily mated with another corner protector to define the U-shape of the product protector.

Each of the corner protectors is formed from an inner layer and an outer layer each formed from laminated paperboard. Both the inner layer and the outer layer have a generally V-shape and are configured to be placed adjacent to each other to define a single corner protector. The outside layer of the corner protector has a first leg and a second leg having similar dimensions. The inner layer also is V-shaped and has a first leg generally corresponding to the length of the first leg of the outer layer. The first leg of the inner and outer layer are secured to each other by an adhesive.

The second leg of the inner layer is shorter than the second leg of the outer layer to create an overlap area between the outer edges of the second leg of the inner layer and the second leg of the outer layer. In accordance with the present invention, the second leg of the inner layer is not secured to the second leg of the outer layer such that the two legs can be separated during mating with another V-shaped corner protector.

When a pair of corner protectors are mated, the overlap area of the first corner protector is positioned between the second leg of the inner and outer layers of the second corner protector. Thus, the combination of the two corner

protectors creates a smooth inside surface and does not need external devices, such as rivets, to secure the two components to each other.

Various other features, objects and advantages of the invention will be made apparent from the following description taken together with the drawings.

5

## BRIEF DESCRIPTION OF THE DRAWINGS

The drawings illustrate the best mode presently contemplated of carrying out the invention.

In the drawings:

Fig. 1 is a perspective view illustrating the prior art system utilizing a pair of laminated paperboard corner protectors attached to each other by rivets;

10

Fig. 2 is a perspective view illustrating the system of the present invention utilizing a pair of corner protectors constructed in accordance with the present invention;

15

Fig. 3 is a perspective view illustrating one of the corner protectors of the present invention; and

Fig. 4 is a perspective view illustrating the interaction between a pair of corner protectors constructed in accordance with the present invention.

## DETAILED DESCRIPTION OF THE INVENTION

Referring first to Fig. 1, there is shown a prior art U-shaped edge protector 10 that can be utilized to provide three-sided protection for difficult to manage, long, narrow items such as windows, doors and panels. The edge protector 10 is formed from a pair of corner protectors 12 joined to each other to define the general U-shape. Each of the corner protectors 12 includes a first leg 14 and a second leg 16 joined to each other along a 90° corner 18 such that each corner protector 12 has a generally V-shape. The first leg 14 is defined by a top edge 20 while the second leg 16 is defined by an outer edge 22. In the preferred embodiment of the invention, each of the corner protectors 12 are formed from laminated paperboard.

20

25

30

As illustrated in Fig. 1, the corner protectors 12 are positioned relative to each other such that the first corner protector overlaps the second corner

protector along an overlap area 24. A series of rivets 26 are spaced along the overlap area 24 to join the legs 16 of the aligned corner protectors 12. The rivets 26 securely join the corner protectors 12 to provide a durable U-shaped edge protector.

5                   Although the edge protector 10 illustrated in Fig. 1 provides the required protection for the sides of a long, narrow item, the rivets 26 contact an edge of the product being protected and could possibly mar the outer surface of the product. Further, the outer edge 22 of the corner protector 12 extends above the inner face surface 27 of the overlapped leg, which could also mar a delicate  
10 product being shipped. Therefore, although the edge protector 10 of the present invention can be used for many packaging applications, a need exists for an improved edge protector.

Referring now to Figs. 2-4, there is shown the packaging system of the present invention. As best illustrated in Figs. 3-4, the packaging system  
15 includes an improved corner protector 28, as best illustrated in Fig. 3. The corner protector 28 includes a first leg 30 and a second leg 32 joined to each other along a corner 34. Preferably, the corner 34 defines a 90° angle such that the corner protector 28 has a generally V-shape.

As illustrated in Fig. 3, the corner protector 28 is formed from an  
20 outer layer 36 and an inner layer 38, each of which include a pair of legs. As illustrated in Fig. 3, the first leg 40 of the outer layer 36 has the same length as the second leg 42. The inner layer 38 also includes a first leg 44. However, the second leg 46 has a length less than the length of the first leg 44. Thus, the edge 48 of the second leg 46 is spaced inward from the outer edge 50 of the second leg  
25 42 of the outer layer 36. Thus, the thickness of the corner protector 38 is reduced along an overlap area 52 as compared to the remaining portions of the edge protector 28.

As illustrated in Fig. 3, the first leg 40 of the outer layer 36 is joined to the first leg 44 of the inner layer 38 by an adhesive along line 53. Thus, the

outer layer 36 and the inner layer 38 are secured to form a single structure along this area.

Referring now to Fig. 4, the second leg 42 of the outer layer 36 is not adhesively attached to the second leg 46 of the inner layer such that the second legs 42 and 46 can be separated, as illustrated. As shown in Fig. 4, a pair of the corner protectors 28 can be mated to each other such that the overlap area 52 of the right corner protector 28 is placed between the second legs 42 and 46 of the left corner protector 28. When the corner protectors 28 are configured as illustrated, the edges 48 of the two corner protectors 28 generally abut each other to form a smooth surface along the bottom of the combined edge protectors. Further, since the corner protectors 28 are press fit into contact with each other, rivets are no longer required to secure the two components to each other.

Referring now to Fig. 2, there is shown a pair of corner protectors 28 joined to each other to define a U-shaped edge protector to provide protection to three edges of a product 54.

As discussed above, advantages of the corner protector 28 of the present invention are obvious and include the elimination of rivets to prevent scratching to a product being shipped, the creation of a smooth inside surface along the bottom of the combined protectors and the interaction between the two corner protectors to prevent damage to a product being shipped. Further, since each of the corner protectors can be quickly and easily mated with another corner protector, each corner protector 28 can be stored in a nested condition to both lower freight costs and reduce the storage area required in a user's plant. Further, since the components are press fit together, no additional labor costs are required to assemble the device, as was the case with a riveted connection shown in Fig. 1.

Various alternatives and embodiments are contemplated as being within the scope of the following claims particularly pointing out and distinctly claiming the subject matter regarded as the invention.